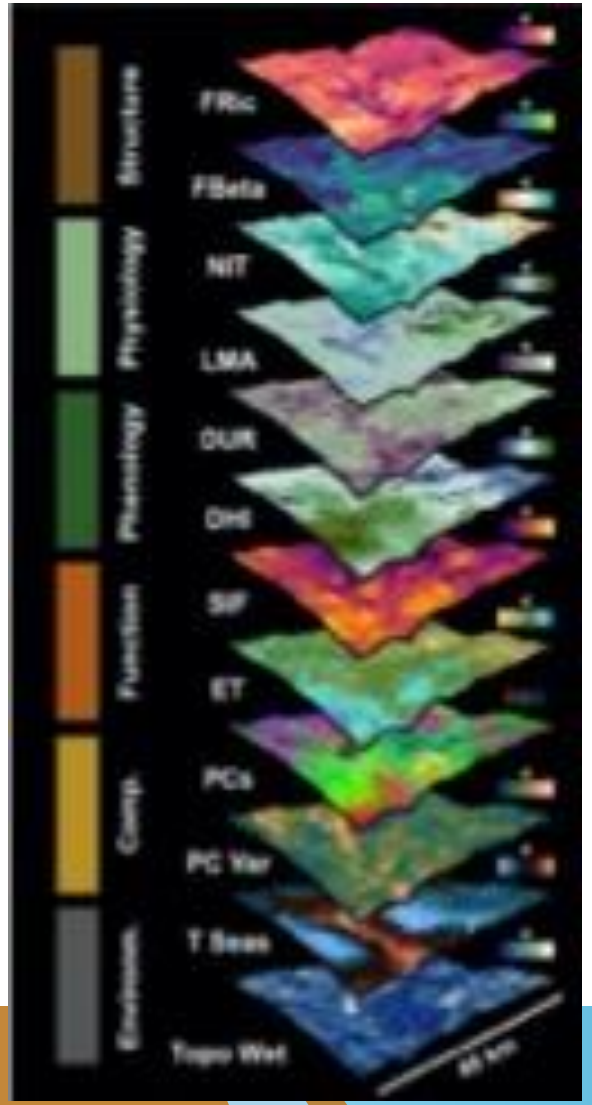
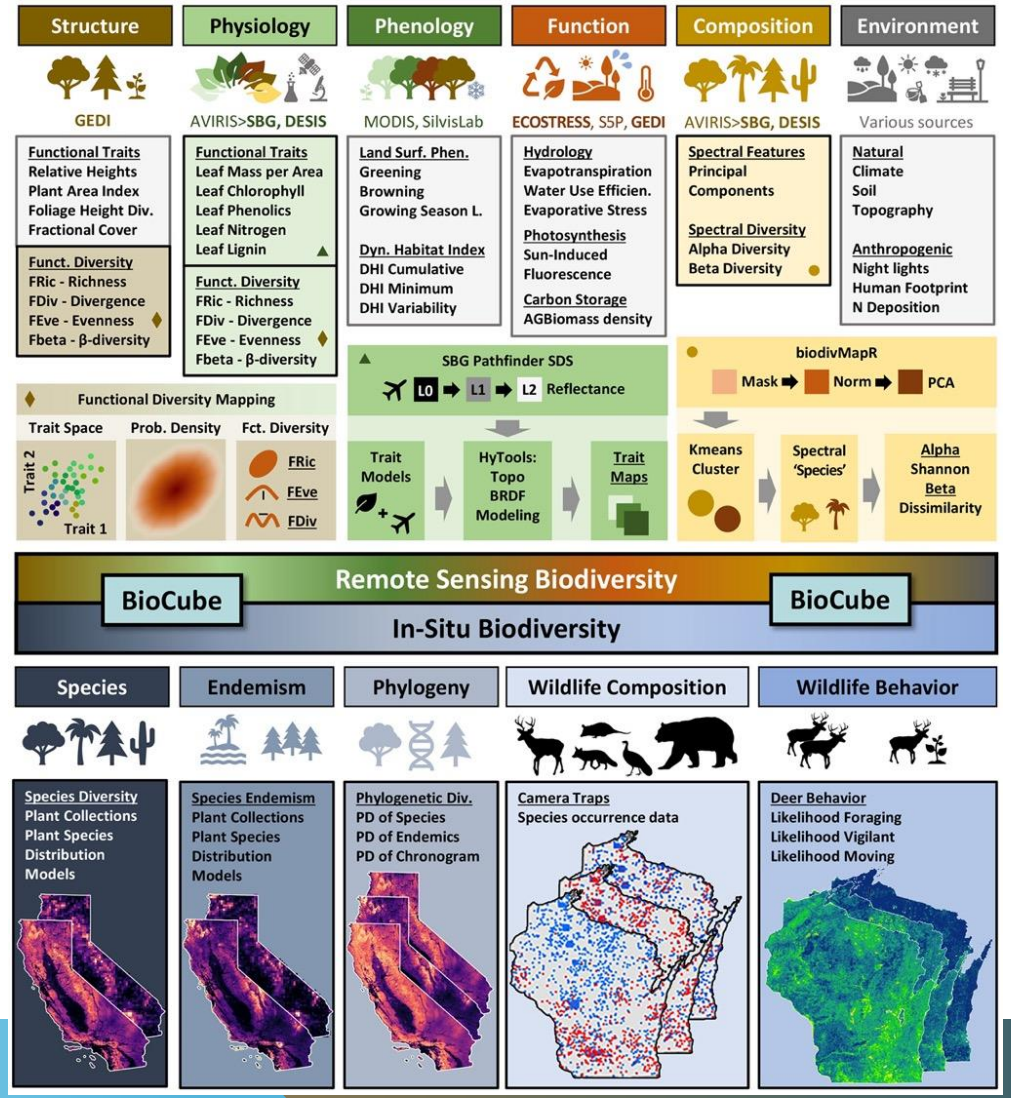
Pavlick–BioCube

Ryan Pavlick[1], *Fabian D Schneider*[1], *Philip A Townsend*[2], *John D.J. Clare*[3], *Ting Zheng*[2], *Natalie Queally*[2], *Adam Chlus*[1], *Zhiwei Ye*[2], *Morgan Dean*[1,4] *and Camila Cortez*[1,2]

(1) Jet Propulsion Laboratory, California Institute of Technology (2)University of Wisconsin-Madison (3) University of California, Berkeley, (4) University of Michigan





We are developing an open-source data cube framework, ***BioCube***, that integrates six major dimensions of biodiversity that can be measured from space on a common spatiotemporal grid at 1 km resolution.

We plan to address four key science questions using BioCubes covering large parts of California and Wisconsin:

1) How are the dimensions of biodiversity related to each other, and what is the predictability of in-situ plant species richness, endemism and phylogenetic diversity from space-based remote sensing data?

2) What are the roles of functional, taxonomic, phylogenetic and spectral diversity in predicting the magnitude and stability of ecosystem function at large spatial scales?

3) How well do the BioCube remote sensing dimensions predict animal community composition and biodiversity using matrix dissimilarity and macroecological models?

4) How do BioCube remote sensing dimensions relate to aspects of deer behavior?